Section 4.1
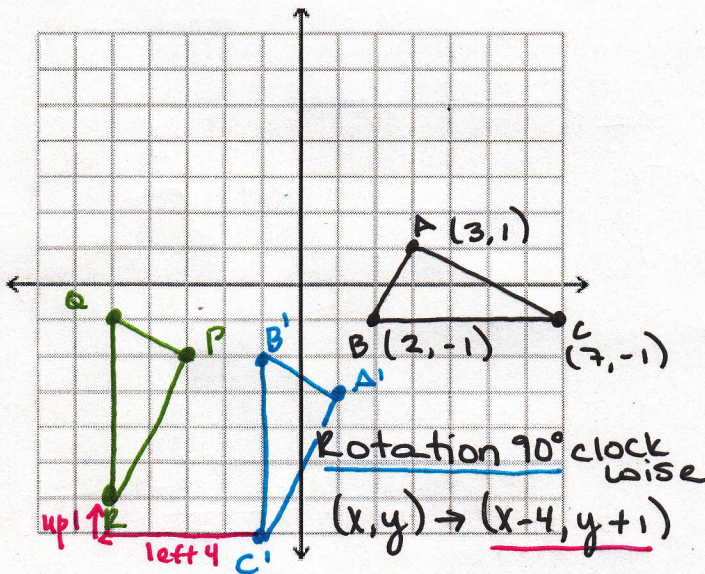
1. Name the following transformation rules:
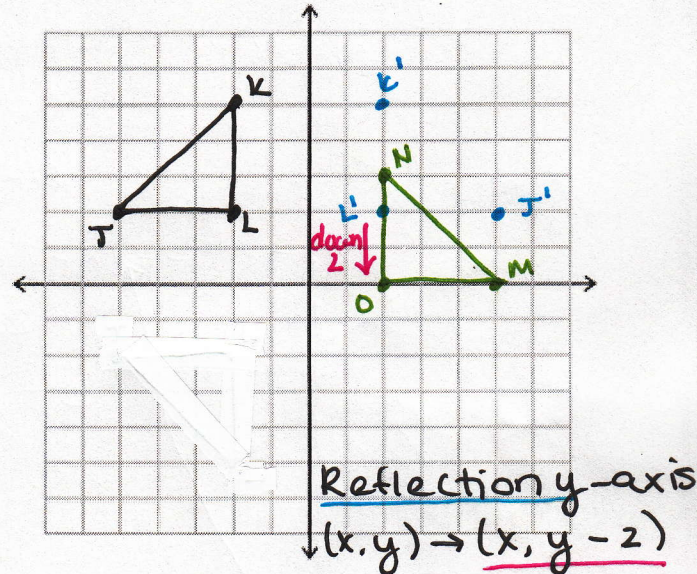
   a. Reflection over the x-axis: $(x, y) \rightarrow (x, -y)$

   b. Reflection over the y-axis: $(x, y) \rightarrow (-x, y)$

   c. 90 degree counter-clockwise rotation: $(x, y) \rightarrow (-y, x)$

   d. 180 degree rotation: $(x, y) \rightarrow (-x, -y)$

   e. 90 degree clockwise rotation: $(x, y) \rightarrow (y, -x)$

2. Prove the two polygons are congruent.

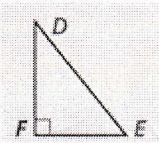   a. $A(3, 1), B(2, -1), C(7, -1)$
      $P(-3, -2), Q(-5, -1), R(-5, -6)$

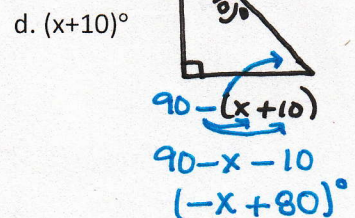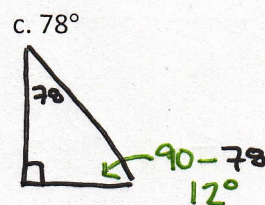   b. $J(-5, 2), K(-2, 5), L(-2, 2)$ and $M(5, 0), N(2, 3), O(2, 0)$

Rotation 90° clockwise
$(x, y) \rightarrow (x-4, y+1)$
up 1 ↑ left 4

Reflection y-axis
$(x, y) \rightarrow (x, y-2)$
down 2 ↓

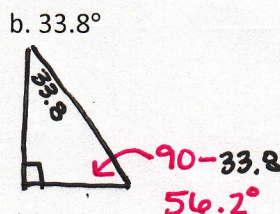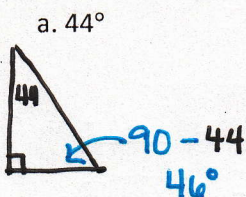## Section 4.2

1. What do the angles of a triangle sum to? **180°**

2. What do angles D and E sum to?
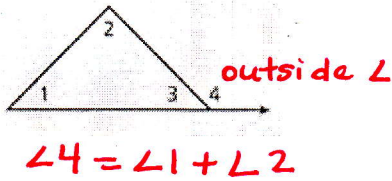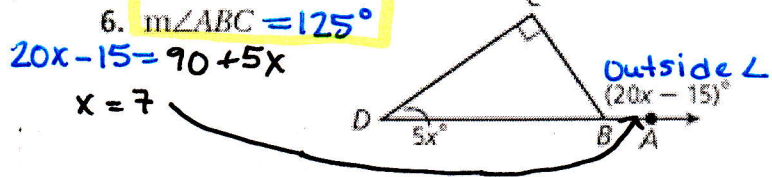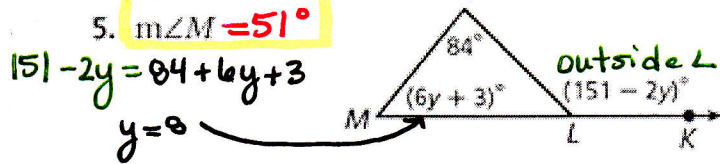

$\angle D + \angle E = 45°$
(b/c $\angle F = 90°$)

3. The measure of one of the acute angles in a right triangle is given. What is the measure of the other one?

a. 44°

$90 - 44$
46°

b. 33.8°

$90 - 33.8$
56.2°

c. 78°

$90 - 78$
12°

d. $(x+10)°$

$90 - (x+10)$
$90 - x - 10$
$(-x + 80)°$

4. What do angles 1 and 2 sum to?

Find each angle measure.

5. $m\angle M = 51°$

$151 - 2y = 84 + 6y + 3$

$y = 8$

outside ∠

$(6y + 3)°$ $(151 - 2y)°$

outside ∠

$\angle 4 = \angle 1 + \angle 2$

6. $m\angle ABC = 125°$

$20x - 15 = 90 + 5x$

$x = 7$

Outside ∠
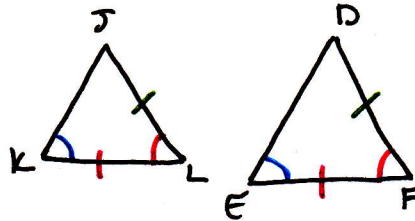$(20x - 15)°$

$5x°$

Section 4.3

1. Given: $\triangle JKL \cong \triangle DEF$. Identify the congruent corresponding parts. **✱Draw the triangles, if you need to.**

$\overline{KL} \cong$ _?_ **EF**

$\overline{DF} \cong$ _?_ **JL**

$\angle K \cong$ _?_ **∠E**

$\angle F \cong$ _?_ **∠L**

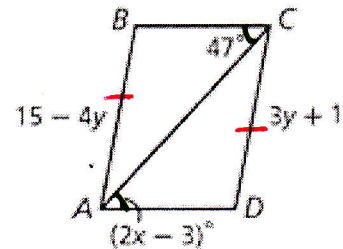✱Should be able to tell from the congruent statement.

Given: $\triangle ABC \cong \triangle CDA$. Find each value.

2.

a) x

$2x - 3 = 47$
$2x = 50$
$x = 25$

b) $\overline{CD}$

$15 - 4y = 3y + 1$
$2 = y \longrightarrow \overline{CD} = 3(2) + 1 = 7$

$47°$ $15 - 4y$ $3y + 1$ $(2x - 3)°$

1. How many sides and angles must be congruent for a triangle to be considered isosceles?
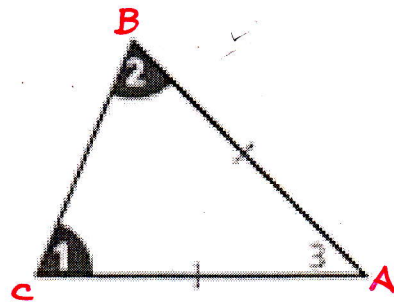
2 sides (legs) & 2 angles (base angles)

2. In the picture identify the following:
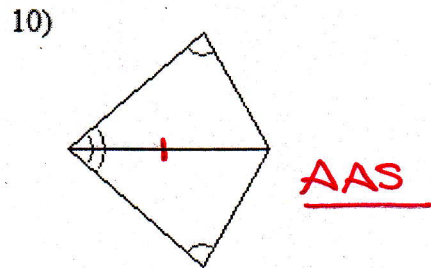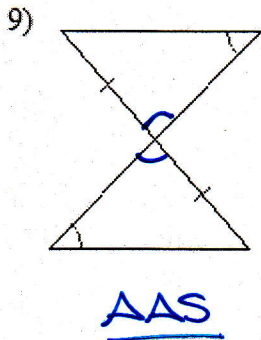
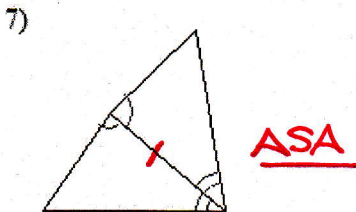a. legs: **AB & AC**

b. Base angles: **∠1 & ∠2**

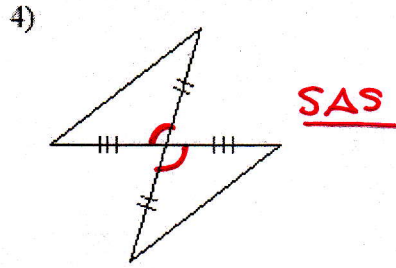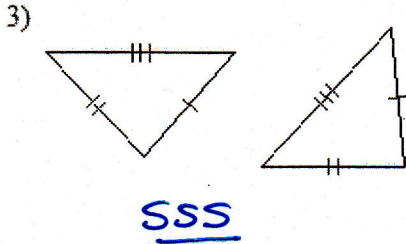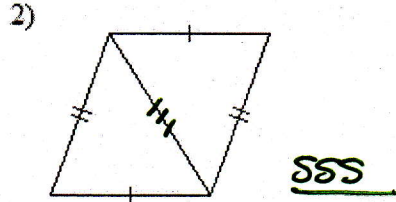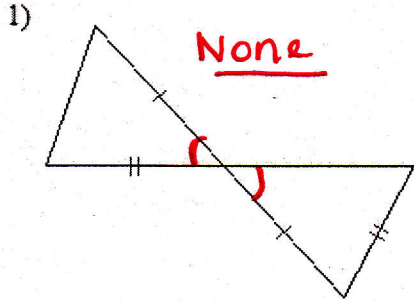c. Base: **BC**

d. vertex: **∠3**

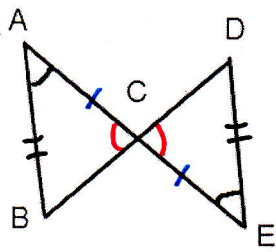3. What do the sides and angles have to be for a triangle to be considered an equilateral?

all sides & all angles must be congruent

State if the two triangles are congruent by SSS, SAS, ASA, AAS, or HL.

1)

None

2)

SSS

3)

SSS

4)

SAS

5)

AAS

6)

ASA

7)

ASA

8)

None

9)

AAS

10)

AAS

1. Given: BD is the segment bisector of AE, <A≅<E

Prove: AB ≅ ED

Statements	Reasons
~~BC~~ BD is the bisector of AE	Given
AC≅EC	Def of Bisector
<A≅<E	Given
<ACB≅<ECD	Vertical ∠s
△ ACB ≅ △ ECD	ASA
AB ≅ ED	CPCTC

2. Given: EF ≅ GF, <EFD ≅ <GFD

Prove: <E ≅ <G

Statements	Reasons
EF ≅ GF	Given
<EFD ≅ <GFD	Given
FD ≅ FD	Reflexive POC
△ EFD ≅ △ GFD	SAS
<E ≅ <G	CPCTC

Find each value:

4. m∠C = 5(20) = 100°

$2x+2x+5x=180$
$9x=180$
$x=20$

Isosceles

5. ST = 6

$8-4w=2w+5$
$-6w=-3$
$w=½$

Equilateral

6. Solve for x:

Isosceles

$x+20$ 12

$X+20=12$
$X=-8$

7. Solve for x:

$m∠2 = x + 70$

$X+70=60$
$X=-10$